

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 September 2005 (01.09.2005)

PCT

(10) International Publication Number
WO 2005/079466 A3

(51) International Patent Classification⁷: **H01M 8/10**

(21) International Application Number:
PCT/US2005/005088

(22) International Filing Date: 16 February 2005 (16.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/545,772 19 February 2004 (19.02.2004) US

(71) Applicant (for all designated States except US): **GEORGIA TECH RESEARCH CORPORATION** [US/US];
505 Tenth Street, NW, Atlanta, GA 30332-0415 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KOHL, Paul** [US/US]; 130 Cameron Glen Drive, Atlanta, GA 30328 (US). **MOORE, Christopher, W.** [US/US]; 3235 I Post Woods Drive, Atlanta, GA 30339 (US). **LI, Jun** [CN/US]; 2550 Akers Mill Road, Apt. MS, Atlanta, GA 30339 (US). **TULLIS, Justin** [US/US]; 6088 Millstone Run, Stone Mountain, GA 30087 (US).

(74) Agent: **LINDER, Christopher, B.**; Thomas, Kayden, Horstemeyer & Risley, LLP, 100 Galleria Parkway, NW, Suite 1750, Atlanta, GA 30339-5948 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

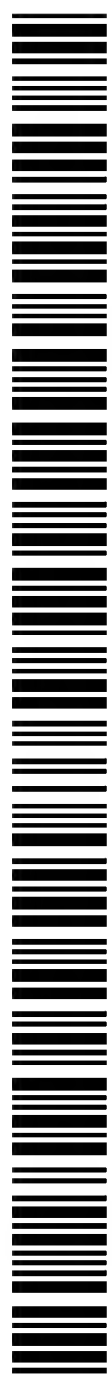
- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
1 December 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MICRO-FUEL CELLS AND METHOD OF MAKING

(57) Abstract: Fuel cells, fuel cell membranes, micro-fuel cells, and methods of fabricating each, are disclosed. One exemplary fuel cell, among others, includes a membrane including a material such as organic conducting materials and inorganic conducting materials, and combinations thereof. The membrane has a thickness of about 0.01 to 10 μm , and has an area resistivity of about 0.1 to 1000 ohms cm^2 .



WO 2005/079466 A3